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ABSTRACT

Research generally points to a negative relationship between school or district size and student achievement. When all else is held equal (particularly community or individual socioeconomic status), comparisons of schools and districts based on differences in enrollment generally favor smaller units. A recent study found that small elementary schools benefitted disadvantaged students most (by weakening the negative influence of background characteristics). A study of higher-order thinking skills found no significant differences in the performance of students in small rural high schools and those in larger high schools in more urbanized areas. Small school size is also associated with lower high school dropout rates. In spite of the apparent benefits of small school size for adolescents, policymakers still employ a powerful rationale to justify the continued creation of larger high schools. The charge is made that small high schools cannot provide a curriculum with adequate breadth and depth to meet students' diverse needs. Yet evidence suggests that a total enrollment of 400 students is actually sufficient to allow a high school to provide an adequate curriculum. In addition, research on grade-span configuration shows that eighth-grade students achieve best in an elementary K-8 setting. If restructuring truly is an aim of school reform, then the scale of schooling is a major structural issue. Making the institution of schooling more responsive to students may require a shift in metaphor from school as organization, where bureaucratic thinking inhibits true learning, to school as community, where learning is "nurtured" or "cultivated." (KS)

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THE ACADEMIC EFFECTIVENESS OF SMALL-SCALE SCHOOLING (AN UPDATE)

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U.S. DEPARTMENT OF EDUCATION
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The Academic Effectiveness of Small-Scale Schooling (An Update)

by Craig Howley

ERIC DIGEST

THE POSITIVE EFFECTS of small school size on attitudes and satisfaction, extracurricular participation, attachment to school, and attendance have been confirmed by decades of research findings (Fowler, 1992). But researchers continue to investigate the unique influence of school and district size on student achievement. The results have generally pointed to a negative relationship between size and academic achievement. All else held equal, small schools have evident advantages for achievement, at least among disadvantaged students (Friedkin & Necochea, 1988; Huang & Howley, 1993).

Empirical Studies of Achievement and Size

During the past decade researchers have continued to pursue several lines of inquiry about the possible effects of school and district size on the cognitive outcomes of schooling. When all else is held equal (particularly community or individual socioeconomic status), comparisons of schools and districts based on differences in enrollment generally favor smaller units.

Early studies that examined school size tried to determine an "optimum" size for both elementary and secondary schools. The most interesting feature of this research was the difference in recommendations based on studies of "input" (for example, costs and teachers' credentials) versus studies of "output" (for example, achievement and attainment). Input studies determined that schools needed to be about twice the size as did output studies. That is, even the early studies *did not* recommend dramatic increases in school size *as a means of improving student achievement* (Howley, 1989).

Recent studies uncover a negative relationship between school (or district) size and student achievement (Fetler, 1989; Friedkin & Necochea, 1988; Huang & Howley, 1993; Plecki, 1991; Walberg, 1989). The advantage might come from the effect of small size on the achievement of disadvantaged students. Huang and Howley (1993), studying individual student achievement, found that small elementary schools benefitted disadvantaged students most (by weakening the negative influence of background characteristics). Friedkin and Necochea (1988), studying both schools (elementary and secondary) and school districts in California, found that community socioeconomic status (SES) exerted a consistent mediating effect on school-level and district-level aggregate achievement. Students in low-SES communities performed much better in small schools, whereas students in high-SES communities performed somewhat better in large schools.

Most studies have relied on standardized achievement tests, which are reputed to focus on basic skills. But perhaps large schools do a better job teaching higher-order thinking skills than small schools, a hypothesis that Haller, Monk, and Tien (1993) examined in a recent study. With higher-order performance items as the measure of achievement, the researchers found no significant difference in the performance of students in small rural high schools and larger high schools in more urbanized areas.

The Issue of Attainment

In the 19th century, learning to read and cipher constituted literacy (Brown, 1993). Whether through schooling or informal efforts, instruction commonly ended with the acquisition of functional reading, writing, and mathematics skills—what Brown calls "shopkeeper skills."

But expectations changed as the urban, industrial economic base grew. In the 20th century, to become educated increasingly meant attending school for a longer and longer time. Apprenticeships and other informal provisions declined as common routes to an education.

Indeed, proportional increases in school enrollment since 1900 can be attributed solely to the growing creation and use of high schools (data based on National Center for Education Statistics [NCES], 1993, Table 8). In 1900, American high schools *graduated* 2.8 students per 1,000 children aged 5-17, as compared to 51.2 in 1990. The change constitutes an 18-fold increase, whereas the increase in *enrollment* (grades 9-12, on the same population basis) was just 10-fold. That is, truly astounding improvements in completion rates outstripped dramatic improvements in enrollment rates.

Today, completing high school has almost become an incumbency of citizenship, and an incomplete high school experience has become a mark of personal and institutional failure. Seldom do we consider what a profound shift this change in attitude represents for civilization—and in the lives of children and youth.

High School Matters

Small school size is associated with lower high school dropout rates (e.g., Kleinfeld, McDiarmid, & Hagstrom, 1989; Toenjes, 1989). Pittman and Haughwout (1987) attribute much of this effect to high school social climate, especially as reflected in the level of student participation in school activities. High rates of student participation long have been recognized as one of the strengths of smaller high schools (e.g., Barker & Gump, 1964).

In this light, it is not surprising that the "dropout problem" should so often figure as a challenge for urban (especially inner-city) educators. Of the nearly 4,100 regular public high schools that enroll 1,000 students or more, only 20 percent are located in rural areas and small towns (NCES, 1992). Rural dropout rates are substantially lower than those in urban areas—nearly the same, in fact, as those in the much more affluent suburban areas (see NCES, 1993, Indicator 6, Table 1).

Interestingly, even with socioeconomic status controlled, high dropout rates are also related to lower student achievement among students who *do not* drop out (Fetler, 1989). Thus, at the high school level, achievement (among students retained) and attainment (or dropping out) seem to influence one another and may be related to student participation. Dropping out can be understood as the ultimate refusal to participate in *anything*, academic or social, offered by a school.

In spite of the apparent benefits of small school size for

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adolescents, policymakers still employ a powerful rationale to justify the continued creation of larger high schools. The charge is made that small high schools cannot provide a curriculum with adequate breadth and depth to meet students' diverse needs. Available evidence suggests that this criticism is often exaggerated (Haller, Monk, Spotted Bear, Griffith, & Moss, 1990). In general, Monk and colleagues have suggested that a total enrollment of 400 students is actually sufficient to allow a high school to provide an adequate curriculum (e.g., Monk, 1986).

They note, moreover, that this size threshold merely presents a good *opportunity* to provide an adequate curriculum. It does not ensure actual provision. In other words, whether or not a high school actually provides an adequately broad and deep curriculum depends on leadership. Whatever the size of the school, school personnel can ensure that appropriate courses are provided to meet evident "needs" (depending on the characteristics of communities and students)—or, as is not uncommon, they can fail to do so. The 400-student threshold merely makes it easier for good leadership to fulfill its responsibilities with respect to depth and breadth of course offerings.

But the nature of an "adequate" curriculum is also at issue. The national studies suggest one standard: the presence of a range of specialized academic and vocational courses from remedial to advanced levels (Haller et al., 1993). For communities operating very small high schools (i.e., those with fewer than 400 students), the shopping-mall high school may not, however, be at all responsive to local circumstances. For instance, a much more narrowly focused academic curriculum can produce high levels of achievement even when enrollments are quite small (Brown, 1993). This model may account for the success of Catholic high schools, which, especially in urban areas, are much smaller than their public counterparts.

Grade-span configuration (which grades a school includes) may also influence achievement, according to Wihry, Coladarci, and Meadow (1992). Controlling for SES, these researchers compared the performance of eighth-grade students in various configurations and concluded that an elementary K-8 setting was the most favorable to achievement, whereas a secondary setting (junior-senior high) was the least favorable. Unfortunately, DeYoung, Howley, and Theobald (forthcoming) suggest that, at least in rural areas, small K-8 schools are disappearing as a result of the construction of consolidated middle schools.

Prospects for Community

If restructuring truly is an aim of school reform, then the scale of schooling is a *major structural issue*. Thus, it is not too surprising that mention should be made of the role of small size by astute critics. John Goodlad, Theodore Sizer, Henry Levin, Fred Newmann, Torsten Husen, and Terrel Bell have *all* pointed to smaller school and district size as a way to help the institution of schooling become more responsive to students.

In a recent address to the American Educational Research Association, however, Sergiovanni (1993) called on educators to "change the metaphor" used to describe schooling. Sergiovanni called on administrators to stop regarding the school as an *organization* and start regarding it as a *community*. Community emphasizes naturalistic over mechanistic relationships among the people involved in schooling. Under the terms of this metaphor, learning is "nurtured" or "cultivated"; it is not a "product" or an "output." Most interestingly, and perhaps most radically, Sergiovanni proclaimed a school enrollment of 300 as the largest that could sustain a true educational community.

The features of bureaucracy (for example, impersonality, rules and regulation, technical specialization, and formal hierarchies) have come to characterize many realms of life, including schooling, in the wake of the industrial revolution. According to Brown (1993), however, the techniques, language, and ways of thinking associated with bureaucracy exert a powerful influence on behavior—to the detriment of a true education.

Alternatives to large, impersonal, bureaucratic organizations do exist, as Brown notes. Nonetheless, the prospects for *widely* developing a sense of community in restructured, more personally-scaled schools are not clear. Brown insists that it depends on realizing educational experiences different from those that have prevailed for most of this century.

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